

AMENDMENTS AND REMARKS

CLAIM AMENDMENTS

Claims 19-22 have been amended to be dependent on claim 18.

Claim 21 has also been amended as suggested by the Examiner to replace the expression “non-polymeric hydrocarbyl substituted dicarbonyl derivative” with “non-polymeric hydrocarbyl substituted derivative”.

The amendments described above for claim 19-22 are submitted to overcome the claim objections noted by the Examiner.

No other claim amendments have been made in this response.

REMARKS

The Examiner has rejected claims 1, 5, 10, 12 to 14, and 16-18 under 35 U.S.C. 103(a) over Olson (US 5,308,514) in view of Smith Jr. (US 4,966,722).

The Examiner has indicated that the response filed on 18 November 2009 is insufficient to overcome the rejection based upon Olson in View of Smith under 35 U.S.C. 103 because:

- (i) The Affidavit first compares three inventive compositions (G2, G3 and G4) to succinic acid disclosed by Olson (Example G1 of the Affidavit). However, the Applicant compares only Olson, and not Olson in view of Smith. The Examiner noted that Smith specifically teaches dodecyl succinic acid which is the same compound used in inventive composition G2. The Examiner indicated that data presented only relates to Olson and does not show why the combination of Olson in view of Smith would be non-obvious. The Applicant respectfully traverses.
- (ii) Page 3 of the Affidavit is also noted by the Examiner to present data for examples where the mole equivalent of the succinic acid is the same, yet the compositions all differ in the amount of oil added and the weight percent of calcium sulphonate. The Applicant respectfully submits that the data is a proper side-by-side comparison. The data is a side-by-side comparison because as is explained below (and in the declaration by Dr Fish) the cone penetration is what is known to a person of ordinary skill in the art as the measure

for comparing greases. Greases with a substantially identical cone penetration are allowed to vary in composition in terms of the amount of oil and sulphate used in the composition.

With regard to (i), making the comparison of Olson in view of Smith i.e., including dodecyl succinic acid, the Examiner is in effect requiring the Applicant to compare the present invention against itself. MPEP 716.02(e) III indicates that the Applicant is not required to compare the claimed invention with the subject matter that does not exist in the prior art. Aside from the fact that the Examiner requesting the Applicant to compare the present invention with itself, it is also noted comparative testing suggested by the Examiner would be based on a combination of references such that the comparative example is not known from the prior art. In contrast, the data presented in the response filed 18 November 2009 is submitted to be an accurate representation of Olson compared with the presently claimed invention. In view of these remarks, the Examiner is respectfully requested to withdraw the rejection under (i)

In addition, the previous response and declaration filed 18 November 2009, the Applicant noted that unexpected improvement in performance over the combination on Olson in view of Smith. In particular, the applicant stated the water spray-off data demonstrates that when comparing calcium sulphate greases with similar penetration values, grease with the comparative grease (G5) with succinic acid has inferior water spray-off performance compared to inventive grease (G6) containing dodecyl succinic acid. Thus the Applicant further submits that comparative data presented demonstrates that the presently claimed invention is unobvious over Olson in view of Smith.

With regard to (ii), The Applicant submits that the comparison made in the previous response and declaration filed 18 November 2009 is proper. The greases are formulated to provide identical cone penetrations as measured by ASTM D217. Only at the same cone penetration (stiffness) can any meaningful comparison of water spray-off be made. As a consequence, the amounts of thickener component will invariably differ slightly. These slight differences do not account for the performance differences shown in the declaration submitted by Dr. Fish.

In more detail, the Applicant submits that a person of ordinary skill in the art knows that there are slight variations expected in the amounts of oil and calcium sulphate in the grease. The reason is as is noted in the enclosed declaration by Dr.

Fish that greases are prepared more to a particular target cone (unworked or worked) penetration, as measured by the ASTM D217 test method. The table at the bottom of page 5 of the declaration submitted on 18 November 2009 also compared greases with the same cone penetration. The table is reproduced below.

The text from the declaration by Dr. Fish states “In order to provide another comparison of a calcium sulphonate grease containing (i) succinic acid (G5) and a grease containing (ii) dodecyl succinic acid (G6), two greases were prepared from the G1 and G2 bases as above, with the aim of having a similar penetration range, in other words, the small differences in formulation between these new samples are solely to ensure their penetration range is similar, thus providing a comparison of greases formulated to have similar performance, where the only difference is in the additive of interest. These re-balanced greases are G5 (representative of Olson) and G6 (inventive). The greases were characterised and evaluated for water spray-off performance using the same test methods described above, with the results shown in the following table:

	G5 (Comparative with succinic acid)	G6 (Inventive with dodecyl succinic acid)
Weight of grease	540	540
Additional oil (g)	90	90
Weight of the succinic acid	8.42	19.95
Mole equivalents of the succinic acid	0.07	0.07
% thickener in final grease	33.58%	34.72%
% oil in final grease	66.42%	65.28%
Unworked penetration (ASTM D217)	303	306
Worked penetration (ASTM D217)	297	303
Color	Greenish Brown	brown
Appearance	Soft and tacky with lumps	Soft, clear and tacky
Water spray off (%wt) (ASTM D4049)	15.7	9.6

The water spray-off data demonstrates that when comparing calcium sulphonate greases with similar penetration values, grease with the comparative grease (G5) with succinic acid has inferior water spray-off performance compared to inventive grease

(G6) containing dodecyl succinic acid. This unexpected result shows the benefits of the present invention.”

With regard to the cone penetration, the difference in unworked and worked penetration differ by three and six respectively. However, these are considered the same values according to the ASTM Standard D 217 – 02 (Reapproved 2007) (see enclosed). The Examiner is respectfully requested to view section 13 Precision and Bias (Table 1, also reproduced below).

TABLE 1 Repeatability and Reproducibility

Penetration	Penetration Range	Repeatability, One Operator and Apparatus	Reproducibility, Different Operators and Apparatus
Unworked	85 to 475	8 units	19 units
Worked	130 to 475	7 units	20 units

Since the worked and unworked penetrations differ by less than 7 units, the cone penetrations are the same. This means to a person of ordinary skill in the art of grease making that the greases are the same. In order for the cone penetration to be the same minor differences in the amount of calcium sulphonate and oil of lubricating viscosity are considered inconsequential. This is also described by Dr Fish in the enclosed declaration.

As can be seen from the data presented for G5 (comparative) and G6 (inventive) the inventors of the present invention have unexpectedly found a difference in water spray off performance. The data demonstrates that adding the presently claimed succinic acids unexpectedly reduces the grease tendency to be sprayed off by water. This unexpected difference in performance is not taught by Olson, nor is it taught, suggested or otherwise disclosed by Smith.

In view of the remarks above relating to item (ii) the Examiner is therefore requested to re-consider this objection and to withdraw the rejection under (ii).

CONCLUSION

In view of the remarks above, Applicants believe that the present invention meets all of the requirements of patentability i.e., novelty, unobviousness (including the examples are commensurate in scope with the breadth of the pending claims), and requests the Examiner to find all claims allowable. The foregoing remarks are believed to be a full and complete response to the outstanding office action. If for any reason the Examiner believes that a telephone conference would expedite the prosecution of this application, I can be reached at the telephone number listed below.

Respectfully submitted,

THE LUBRIZOL CORPORATION

/Teresan W. Gilbert #31360/

Teresan W. Gilbert
Attorney for Applicants

29400 Lakeland Blvd.
Wickliffe, Ohio 44092-2298
Telephone: 440-347-5072
Facsimile: 440-347-1110
teresan.gilbert@lubrizol.com